

S/191/62/000/012/007/015  
B101/B106

AUTHORS: Volkov, V. L., Kafyrov, M. I., Kleshchevnikova, S. I.,  
Rumyantseva, Ye. I.

TITLE: Synthesis of triethoxy silane

PERIODICAL: Plasticheskiye massy, no. 12, 1962, 28-29

TEXT: Triethoxy silane is synthesized by bringing trichlorosilane into reaction with ethanol at 25-30°C without using a solvent. The following conditions must be satisfied: (1) In the reaction, the component ratio must be strictly adhered to. The volume ratio indicated is:  $\text{SiHCl}_3:\text{C}_2\text{H}_5\text{OH}=1:1.75$ .

(2) The water content of the ethanol must be less than 0.2%. (3) The hydrogen chloride formed must be evacuated rapidly from the reaction vessel. This was secured by passing through nitrogen at a rate of 1-1.5 l/min per liter of reacting liquid, by increasing the nitrogen rate to 3-4 l/min when the introduction of components was completed, and by heating to 50°C when the Cl content of the reaction mixture had reached 7%. The flow of nitrogen was stopped when the Cl content dropped below

Card 1/2

KAGAKOV, A.

Adopting the proposal of an efficiency promoter. Pozh.delo  
6 no.1:4 Ja '60. (MIRA 13:5)

1. Starshiy inspektor Inspektzii pozharnoy okhrany, Kara-Kalpaksкая ASSR.  
(Kara-Kalpak--Cotton manufacture--Fires and fire prevention)

KAGAL'NIKOV, P.A., inzh.

~~.....~~  
Safety measures in mining. Bezop.truda v prom. 2 no.5:11-13 My '58.  
(Mining engineering--Safety measures) (MIRA 11:4)

KAGAL'NIKOV, P.A., inzh.

~~Automatic ventilation gates.~~ Bezop.truda v prom. 2 no.9:31 S '58.

(MIRA 11:9)

(Mine ventilation)

RADZIYEVSKIY, V.V.; KAGAL'NIKOVA, I.I.

Nature of gravitation. *Biul.VAGO* no.26:3-14 '60. (MIRA 13:10)

1. Gor'kovskoye otdeleniye Vsesoyuznogo astronomo-geodezicheskogo obshchestva i Yaroslavskoye otdeleniye Vsesoyuznogo astronomo-geodezicheskogo obshchestva.

(Gravitation)

KAGAL'NIKOVA, I.I.; RADZIYEVSKIY, V.V.; CHERNIKOV, Yu.A.;  
CHERNYSHOV, V.I.; SHUVALOV, V.V.

Observation of the gravity effect of the solar eclipse of  
February 15, 1961 in Yaroslavl. Biul. VAGO no.31:15-17 '62.  
(MIRA 16:4)

1. Yaroslavskiy gosudarstvennyy pedagogicheskiy institut  
imeni K.D. Ushinskogo i Yaroslavskoye otdeleniye Vsesoyuznogo  
astronomo-geodesicheskogo obshchestva.  
(Yaroslavl--Eclipses, Solar) (Gravity)

KAGAL'NIKOVA, I.I.

History of the development of nonrelativistic notions on the  
nature of gravitation. Uch. zap. IAr. gos. ped. inst. no.56:  
87-188 '63. (MIRA 17:10)

KAGAL'NITSKIY, V.G., shturman dal'nego plavaniya (Tallinn); STRELKOV, P.P.

Bats over the sea. Priroda 49 no.10:95 0 '60. (MIRA 13:10)

1. Zoologicheskii institut AN SSSR, Leningrad (for Strelkov).  
(Black Sea--Bats)



KAGAL'NYAK, G. I. [Kahal'niak, H. I.]

Peculiarities of comparison among younger pupils. Nauk. zap. Nauk.-  
dosl. inst. psykol. 11:69-72 '59. (MIRA 13:11)

1. Pedagogicheskiy institut, Uman'.  
(Comparison (Psychology))

KOLOMIN, Ye., kand. ekonom. nauk; KAGALOVSKAYA, E.

Our consultations. Sov. profsoluzy 18 no.17:43-44 S '62.  
(MIRA 15:8)

1. Starshiy ekonomist otдела gosudarstvennogo strakhovaniya  
Ministerstva finansov SSSR.

(Insurance) (Disability evaluation)

(Employees, Dismissal of)

KAGALOVSKAYA, M. P.  
25841

Dva Sluchaya Anevrizmy Serdtsa. Sbornik Nauch.  
Rabot Lecheb. Uchrezhdeniy Mosk. Voen. Okr.  
Gor'kiy, 1948, S. 239-45

SO: LETOPIS NO. 30, 1948

AUTHOR: Kagalovskiy, A.I. SOV/136-59-3-21/21  
TITLE: Equipment for the Pressing of Metals (Oborudovaniye  
dlya pressovaniya metallov)  
PERIODICAL: Tsvetnyye Metally, 1959, <sup>3</sup>Nr 3, pp 89 - 94 (USSR)  
ABSTRACT: The author surveys recent foreign literature on  
equipment for pressing metals.  
There are 5 figures, 3 tables and 17 references,  
12 of which are English, 3 German, 1 French and  
1 Italian.

Card 1/1

USCOMM-DC-60,725

NDG-GOLOVIN, I. I.

36

PHASE I BOOK EXPLOITATION

SOV/5799

Unksov, Ye.P., Doctor of Technical Sciences, Professor, Ed.

Sovremennoye sostoyaniye kuznechno-shtampovogochnogo proizvodstva (Present State of the Pressworking of Metals) [Moscow] Mashgiz, 1961. 434 p. 5000 copies printed.

Ed. of Publishing House: A.I. Sirotin; Tech. Ed.: B.I. Model'; Managing Ed. for Literature on the Hot Working of Metals: S.Ya. Golovin, Engineer.

Title: Kuznechno-shtampovoychnoye proizvodstvo v SSSR (The Pressworking of Metals in the USSR) by: A.V. Altykis, D.I. Berezhkovskiy, V.F. Volkovitskiy, I.I. Girsh (deceased), L.D. Gol'man, S.P. Granovskiy, N.S. Dobrinskiy, A.K. Zinin, S. L. Zlotnikov, A.I. Kagalovskiy, P.V. Lobachev, V.N. Martynov, Ye.N. Monb-nin, G.A. Navrotsky, Ye.M. Okhrimenko, G.N. Rovinskiy, Ye.A. Stosha, Yu.L. Rozhdestvenskiy, N.V. Tikhomirov, Ye.P. Unksov, V.F. Shecheglov, and L.A. Shof-man; Eds: Ye.P. Unksov, Doctor of Technical Sciences, Professor, and B.V. Roza-nov.

Title: Kuznechno-shtampovoychnoye proizvodstvo v ChSSR (The Pressworking of Metals in the Czechoslovak SR) by: S. Burda, F. Hrazdil, F. Drustik, F. Zlatoblavek

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Present State of the (Cont.)

SGI/5799

Z. Kejval, V. Krauz, F. Kupka, P. Majer, K. Marvan, J. Novak, J. Odchval,  
K. Paul, B. Schner, M. Honz, J. Cestka, V. Sindelar, and J. Dolc; Eds.:  
A. Nejepa and M. Vlk.

PURPOSE: This book is intended for engineers and scientific personnel concerned with the pressworking of metals.

COVERAGE: Published jointly by Mashgiz and SNTL, the book discusses the present state of the pressworking of metals in the USSR and the Czechoslovak Socialist Republic. Chapters were written by both Soviet and Czechoslovak writers. No personalities are mentioned. There are 129 references: 98 Soviet, 16 English, 8 German, 5 Czech, and 2 French.

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PRESSWORKING IN THE USSR

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34

Present State of the (Cont.)

SOV/5799

- Ch. VIII. Scientific Research Work in the Field of Cold Impact Forging of Metals [F. Hrádčil, Plant imeni Šmaral, Brno] 355
- Ch. IX. Experience in the Cold Impact Forging of Nonferrous Metals [K. Marvan and J. Olchmal, Plant Tesla, National Enterprise, Hloubětín, and V. Sindolák, Scientific Research Institute of Vacuum Electrical Engineering, Prague] 381
- Ch. X. The Manufacturing Process and Organization in the Stamping of Bodies at the Automobile Plant "National Enterprise (AZNP) Mladá Boleslav" [Z. Kejval, AZNP, Mladá Boleslav] 397
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- Ch. XII. The Initial Pressworking of FeAl Alloys and Large FeCrAl Castings [F. Majer and J. Holc, Scientific Research Institute of Iron, Prague].

Card 7/8

SHOFMAN, L.A.; KAGALOVSKIY, A.I.

Die stamping in the United states of large-size parts on powerful .  
hydraulic presses (review of foreign publications). Kun. shtam.  
proizv. 3 no. 5:37-41 My '61. (MIRA 14:5)  
(United States--Sheet-metal work)

KAGALOVSKIY, A.I.

Equipment for the press-working of steel. Kuz.--shtam. proizv.  
4 no.3:32-39 Mr '62. (MIRA 15:3)  
(Power presses) (Pipe mills)

L 12892-63 EWP(k)/EWP(q)/EWT(m)/BDS AFFTC/ASD 11-4 JD/HW  
 ACCESSION NR: AP3001423 S/0136/63/000/005/0069/0078

20

AUTHOR: Kagalovskiy, A. I.

TITLE: The regulation of the temperature range-pressing rate of metals

16

SOURCE: Tsvetny\*ye metally\*, no. 6, 1963, 69-78

TOPIC TAGS: pressing, low plastic ferrous alloys, crack formation, automatic controls, rate of pressing, oil hydraulic servomechanism

ABSTRACT: Deviation from optimum temperature ranges and heating rates during the pressing of low plastic ferrous alloys leads to crack formation. Devices have been developed by UZTM for the automatic regulation of rate of pressing, using an oil hydraulic servo mechanism, thus increasing productivity and quality of pieces. Orig. art. has: 6 figures.

ASSOCIATION: none

SUBMITTED: 00

DATE ACQ: 09Jul63

ENCL: 00

SUB CODE: 00

NO. REF SOV: 004

OTHER: 003

Cord 1/1

KAGALOVSKIY, D.I., inzh.; POKHASS, L.I., inzh.

Dismountable structures for storing cement. Avt.dor. 23  
no.2:16-17 F '60. (MIRA 13:5)  
(Cement--Storage)

SMEKHOV, M.K., inzh.; KAGALOVSKIY, D.I., inzh.

Site for manufacturing precast reinforced concrete articles. Avt.dor,  
24 no.5:12-14 My '61. (MIRA 14:6)  
(Reinforced concrete)

SUDHANAY, I.A.; KAGANOVICH, D.J.; BIRACCI, A.J.

Modernizing conditions for storing cement and mineral  
fines. Avt.dor. 24 no.7:13-16 S '62. (CMA 14:10)  
(Cement--Storage)



BOGUSH, L.K., prof.; SHIFMAN, N.D., kand. med. nauk.; KADALOVSKIY, G.M., vrach.

Directed segmental bronchography. Khirurgiia 34 no.3:72-77 Mr '58.

(MIRA 12:1)

1. Iz khirurgicheskoy kliniki (sav. - prof. L.K. Bogush) Instituta  
tuberkuleza AMN SSSR (dir. Z.A. Lebedeva).

(BRONCHI, radiography

directed segmental bronchography (Rus))

KAGALOVSKIY, G.M.

Forceps for grasping the pleura. Probl. tub. 36 no.8:98 '58  
(MIRA 12:7)

1. Iz khirurgicheskogo otdeleniya (zav. - kand. med. nauk R. E.  
Kogan Moskovskoy gorodskoy tsentral'noy klinicheskoy tuberkuleznoy  
bol'nitsy (glavnyy vrach - prof. V. L. Lysin)  
(FORCEPS)

KAGALOVSKIY, G.M.

Pleural retractor. Probl.tub. 37 no.1:110-111 '59. (MIRA 12:2)

1. Iz khirurgicheskogo otdeleniya (zav. - kand.med.nauk R.E. Kogan)  
Moskovskoy gorodskoy Tsentral'noy klinicheskoy tuberkuleznoy bol'-  
nitsy (glavny vrach - prof. V.L. Rynis).  
(PNEUMONECTOMY, appar. & instr.  
pleural retractor (Rus))

BOGUSH, L.K. (Moskva, D-63, ul. Lavitana, d.1/40, kv.223); KAGALOVSKIY,  
G.M.

New apparatus for closing the bronchial stump in pulmonary  
resection. Grud.khir. no.3:67-69 '61. (MIRA 14:9)

1. Iz khirurgicheskogo otdeleniya Instituta tuberkuleza (dir. -  
chlen-korrespondent AMN SSSR N.A. Shmelev) AMN SSSR.  
(LUNGS—~~SURGERY~~)

(SURGICAL INSTRUMENTS AND APPARATUS)

KAGALOVSKIY, G.M. (Novosibirsk, 99, ul.Chaplygina, d.35, kv.25); OGIRENKO, A.P.

Concentric osteomuscular thoracoplasty in patients with a postre-  
section empyema of the pleural cavity and a bronchial fistula.  
Grud. khir. 6 no.5:85-87 S-0 '64. (MIRA 18:4)

1. Khirurgicheskiye otdeleniya Novosibirskoy gosodskoy tuber-  
kuleznoy bol'nitsy No.26.

H.G. 14, 15, 16: DOUGHERTY, G.H.

*Monocotyledon with the aid of a phloem duct from 100-67.  
Mir. August. 9 no. 3:64-64. 18-10-64.*

( 2 )

1. Khirurgicheskiye otdeleniya i distriktnyye imunitetnyye laboratorii  
(dir. - deputat gos. duma A.M. Sidorov, N.A. Zhurav) Ministerstva  
zdravookhraneniya SSSR, Moskva.

KAGALOVSKIY, G.M.; CHEREMNYKH, L.P., kand.med.nauk

Pathohistological changes in the bronchi at the site of trans-  
section during pulmonary resection for tuberculosis. Probl. tub.  
42 no.8:70-74 '64. (MIRA 18:12)

1. Novosibirskaya gorodskaya protivotuberkuleznaya bol'nitsa  
No.26 (glavnyy vrach V.V.Semenova).

G  
KARALOVSKIY, S.P., Cand Tech Sci -- (diss) "Sorting  
cotton-~~plant~~ seeds ~~in cotton~~ <sup>at</sup> cotton-cleaning plants."

Tashkent 1958, 19 pp (Min of Higher Education USSR.

Tashkent Textile Inst) 180 copies (KL, 32-58, 108)



KAGALOVSKIY, S. P.

USSR/Cultivated Plants - Commercial. Oil-Bearing. Sugar-Bearing.

M-5

Abs Jour : Ref Zhur - Biol., No 20, 1958, 91741

Author : Vol'kovich, N.Ye., Kagalovskiy, S.P., Yerofeyev, S.B.

Inst : AS Uzbek SSR, *Inst. matematiki i mexaniki im. V.I. Romanovskogo*

Title : Distribution of Bolls on Cotton Bushes in Square-Pocket Planting.

Orig Pub : UzSSR Fanlar Akad. dokladi, Dokl. AN UzSSR, 1957, Nr. 10, 45-49.

Abstract : For the purpose of creating a correct technological basis for cotton harvesting machines the Institute of Mathematics and Mechanics of the Academy of Sciences of Uzbek SSR conducted laboratory and field experiments on square-pocket sowing of cotton (variety 108-F) with different sides to the square and different numbers of plants in the bunch.

Card 1/2

KAGAN, A., UMANSKIY, J., YELUTINA, V., and PIVOVAROV, L.

"X-ray Diffraction Data on the Changes in Mosses Caused by Disintegration" (Section 11-4) a paper submitted at the General Assembly and International Congress of Crystallography, 10-19 Jul 57, Montreal, Canada.

C-3,800,189

Valovaja st. 4 fl. b1 (UMANSKIY)

Moscow (YELUTINA, KAGAN, and PIVOVAROV)

RAJAN, A.

70-4-9/16

AUTHOR: Umanskiy, Ya., Yelyutina, V., Kagan, A. and Pivovarov, L.

TITLE: X-ray analysis of the changes in the mosaic structure during ageing of beryllium bronze. (Rentgenoanaliz izmeneniy mozaichnoy struktury pri starenii berilliyevoy bronzy)

PERIODICAL: "Kristallografiya" (Crystallography), 1957, Vol.2, No.4, pp. 503 - 507 (U.S.S.R.)

ABSTRACT: Disintegration of supersaturated solid solutions, as shown by means of X-rays, is followed by changes in mosaic structure, maximum hardness corresponding to minimum size of mosaic blocks.

A study of the disintegration of supersaturated solid solution of tungsten carbide in titanium carbide carried out by one of the authors showed that this process in its early stage is accompanied by an increase in the intensity of the (200) diffraction line of the solid solution. This increase could only be interpreted as caused by a decrease in the size of mosaic blocks of titanium carbide due to the influence of particles of precipitating phase. A similar increase of intensity was observed by other investigators after decrease of block dimensions caused by plastic deformation.

Card 1/4 In the present investigation this assumption was studied

X-ray analysis of the changes in the mosaic structure during ageing of beryllium bronze. (Cont.)

on Ni-Be and Cu-Be alloys containing 2.28% and 2.40% Be, respectively. Nickel content in the latter alloy was about 0.37%.

The intensity of the (111) diffraction line was measured. It was proved that the disintegration of solid solution after an isothermal annealing of quenched Ni-Be alloys at 630 C and a similar annealing of quenched Cu-Be alloys at 250 and 320 C is followed in its early stages by an increase in the intensity of this diffraction line. The corresponding curve for Ni-Be alloy has a sharp maximum after 10 min. annealing at 630 C, that for Cu-Be alloy has a sloping maximum after 10 hours annealing at 320 C.

Calculations based on the equation  $I'/I = \text{th}(nq)/nq$  (i.e. taking into account only primary extinction) yielded the following data on the hardness and the block dimensions of heat-treated alloys at various break-up stages:

Card 2/4

BELOZHEV, G.; BORODIN, A.; KAGAN, A.; PLATONOV, A.; CHUKHAR'KO, Z.

Methods of determining the economic effectiveness of investments  
in the grain storing and milling industry. Muk.-elev. prom. 26  
no.10:21-23 0'60.

(MIRA 13:10)

(Grain--Storage) (Grain milling)

ABRAMOVICH, Z., inzh.; DUSAVITSKIY, A., inzh.; KAGAN, A., inzh.; RUBIN, L., inzh.

Design practices which increase the intervals between the bearing elements  
of overhead intrafactory pipelines. Prom. stroi. i inzh. soor. 5 no.2:  
45-46 Mr-Ap '63. (MIRA 16:4)

(Pipelines)

KAGAN, A

D

Zapasnyye chasti avtomobilya GAZ-MM; Al'bom chertezhey (Spare parts for the GAZ-MM automobile; album of drawings) Moskva, Mashgiz, 1952

110 p. diagrs., tables

N/5  
743.25  
.K1

GOL'MAN, A.B., inzh.; KAGAN, A.G., inzh.

Response to IU. IA Golger's and I.G. Samoilov's article "Improved  
flowsheet for the dressing of Mlenovka limestone." Gor. zhur.  
no.12:69-70 D '60. (MIRA 13:12)

1. Yuzhgiproruda, Khar'kov.  
(Ore dressing)

(Golger, IU. IA.)

(Samoilov, I.G.)

KRIKUN, Zakhar Nikitovich; KAGAN, Abram Iosifovich; SMOTRITSKIY,  
Shmul' Moysseyevich; SOLGANIK, G.Ya., red.

[Remote control in petroleum refineries] Telemekhaniza-  
tsiia neftepererabatyvaiushchikh zavodov. Moskva, Khi-  
mija, 1964. 93 p. (MIRA 18:1)



KAGAN, A.I.

Reliability of the remote-control channels of an oil field. Mash.  
i neft. obor. no.8:25-28 '64. (MIRA 17:11)

1. Groznenskiy filial Vsesoyuznogo nauchno-issledovatel'skogo i proyektno-konstruktorskogo instituta kompleksnoy avtomatizatsii neftyanoy i gazovoy promyshlennosti.

KAGAN, H.I.

CA

PROCESSES AND PROPERTIES OF  
Blood transfusion following poisoning with nitrochloro-  
benzene. A. I. Kagan. *Med. expl.* (Ukraine) 1937.  
No. 7, 65-70. Nitrochlorobenzene (a 50% soln. in  
acetone) was injected subcutaneously into dogs (400  
mg. kg. body wt.). Nitrochlorobenzene poisoning leads  
to methemoglobin formation and therefore to anemia  
bleeding and subsequent replacement of the blood by  
Ringer-Locke decreased the methemoglobin content.  
Blood transfusion was more effective than bleeding and  
markedly decreased the percentage of lethal cases. The  
anemia which ordinarily follows 5-10 days after the poi-  
soning can be combated by blood transfusion at that time.  
S. A. Gerson

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ASO 34.4 METALLURGICAL LITERATURE CLASSIFICATION

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KAGAN, H.I.

CA

Determination of fat in bakery products. A. I. Kagan and K. I. Shima. *Lab. Prakt.* (U. S. S. R.) 15: No. 12, 19 (1940). --Place 10 g. of the finely cut sample in a 200-ml. beaker, boil for 5 min. in 100 ml. of HCl (10 ml. of strong HCl per 100 ml. of water), cool and filter through a Buchner funnel. Wash with 20% NaCl soln. until free from acid. Transfer the filter with the ppt. to a small porcelain mortar, dry at 100°, grind with burned gypsum until a dry mass is obtained and transfer to a 200-ml. flask. Wash the mortar 2-3 times with ether and add with 75-100 ml. of addnl. ether to the same flask and stopper. Shake the contents for 10-15 min. and let stand overnight. Filter the residue, wash with ether, dist. off the ether, dry the flask with the remaining fat at 100-105° for 1 hr. and weigh the fat. The method for the detn. of fat with a preliminary hydrolysis gives higher results than the method without hydrolysis. The proposed method is suitable for the sanitary-hygienic lab. Three references. W. R. H.

ASB-51A METALLURGICAL LITERATURE CLASSIFICATION



KAGAN, A.I.

[Tuberculosis of the lungs; a popular science outline] Tuberkul'oz  
lehen'; naukovo-populiarnii naris. Kyiv, Derzh. med. vyd-vo URSR,  
1951. 39 p. (MLA 7:5)  
(Tuberculosis)

KAGAN, A.I.

Certain considerations on classification of tuberculosis.  
Probl. tuberk., Moskva No. 6:58-61 Nov.-Dec. 1953. (DML 25:5)

1. Docent. 2. Of the Tuberculosis Clinic (Head --  
Prof. V.P. Rudin) of Kiev Medical Institute (Director --  
Docent T. Ia. Kalinichenko) and the Tuberculosis Division  
of Clinical Hospital imeni Oktyabr'skaya Revolyutsiya (Head  
Physician -- Docent. I.S. Bogomolets).

KLEBANOV, Mark Abramovich, professor; DRABKINA, Rakhil' Osipovna, professor;  
KAGAN, A.I., redaktor; LOKHMATYY, Ye.G., tekhnichenkiy redaktor

[Antibacterial therapy for tubercular patients] Antibakterial'naya  
terapiya tuberkuleznykh bol'nykh. Kiev, Gos.med.izd-vo USSR, 1955.  
281 p. (MIRA 9:2)

(TUBERCULOSIS)

KAGAN, A.I., kand.med.nauk

Treatment of pneumopleuritis [with summary in English]. Probl.tub.  
37 no.1:79-84 '59. (MIRA 12:2)

1. Iz Pecherskogo protivotuberkuleznogo dispansera (zav. K.A. Giverts, konsul'tant A.I. Kagan) (Kiyev).

(PNEUMONIA, ther.

pneumopleuritis (Rus))

(PLEURISY, ther.

same)



KAGAN, A.I.

Reliability of the remote-control channels of an oil field  
(continuation). Mash. i neft. obor. no.9:21-24 '64. (MIRA 17:11)

1. Groznenskiy filial Vsesoyuznogo nauchno-issledovatel'skogo i  
proyektno-konstruktorskogo instituta kompleksnoy avtomatizatsii  
neftyanoy i gazovoy promyshlennosti.

KAGAN, A.L.

New machine tools in East Germany. Biul.takh.-ekon.inform. no.11:  
82-84 ' 58. (MIRA 11:12)  
(Germany, East--Machine tools)

KAGAN, A.M., inzh.

Snow load on roofs of industrial buildings in the Southern Urals.  
Prom. stroi. 42 no.10:26-29 0 '64. (MIRA 17:11)

1. Ural'skiy nauchno-issledovatel'skiy institut zhelezobetonov i  
betonov.

KAGAN, A.M.; SUTAKOV, V.N.

Structure of a complete class of unbiased estimates for families  
of distributions of a special type. Dokl. AN SSSR 164, no.2:  
267-269 S '65. (IZRA 18:9)

1. Leningradskoye otdeleniye Matematicheskogo instituta im. V.A.  
Steklova AN SSSR. Submitted February 17, 1965.

KAGAN, A.M.; FASTOVSKIY, V.G.; ROVINSKIY, A.Ye.

Heat transfer from a fluidized bed of solid particles to the coil  
pipe surface. Khim.prom. no.11:790-793 N '61. (MIRA 15:1)  
(Fluidization) (Heat—Transmission)

S/064/55/000/002/004/005  
B117/B186

AUTHORS: Gel'perin, I. I., Kagan, A. M.

TITLE: Effect of thermal conductivity of granular substances on the heat exchange of the gases passing through these substances

PERIODICAL: Khimicheskaya promyshlennost', no. 2, 1963, 52 - 55

TEXT: The heat transfer of granular substances was studied on the gases passing through them in a U-shaped tube, of 12 mm diameter, heated with boiling water. 8 Fractions of granular substances having different thermal conductivities were used. Packings of these substances were filled into the tube in a section 408 mm long. The mass flow rate of the air was varied from 0.6 to 7.3 kg/cm<sup>2</sup>·sec during the experiments. The air temperature at the inlet and the outlet of the tube was measured by copper-constantan thermocouples with a special device for averaging the temperature of the air current. The temperature of the tube walls was measured with five thermocouples fitted into them. The mean temperature difference between gas and tube wall was determined by a planimeter from the area bounded by the temperature curves. The accuracy of the experiments was guaranteed by the fact that the heat transfer coefficient was not influenced

Card 1/2

S/064/03/000/002/004/005  
3117/B'86

Effect of thermal conductivity...

by other variable factors (achieved through same size and shape of grains). The heat transfer coefficient was not found to be influenced considerably by the thermal conductivity of the material. This is explained by the thermal resistance of the boundary layer on the tube wall being higher than the resistance of heat transfer from the core to the wall. When the granular layer of the material is heated without gas current it was found that only the length of the period until stationary conditions set in is influenced by the thermal conductivity and the thermal capacity of the granular material. There are 4 figures and 3 tables.

Card 2/2

GEL'PERIN, I.I.; KAGAN, A.M.

Effect of the heat conductivity of granular materials on the  
heat transfer in gases passing through them. Khim. prom.  
no.2:132-135 F '63. (MIRA 16:7)

(Granular materials—Thermal properties)  
(Gases) (Heat—Transmission)



KAGAN, A.M.; GEL'PERIN, I.I.

Effect of the thermophysical properties of gases on their heat  
transfer in the presence of granular materials. Khim. prom.  
no.8:620-622 Ag '63. (MIRA 16:12)

GEL'PERIN, I.I.; KAGAN, A.M.

Direction of the heat flow and its effect on the heat transfer of  
gases in packed tubes. Khim.prom. no.11:859-865 '63. (MIRA 17:4)

KAGAN, A.M.; GEL'PERIN, I.I.

Stabilization of the process of heat transfer in packed tubes.  
Zhur. VKHO 9 no. 2:233-234 '64. (MIRA 17:9)

1. Gosudarstvennyy institut azotnoy promyshlennosti.

KAGAN, A.M.; SUDAKOV, V.N.

Breaking up of certain families of measures. Vest. LGU 19  
no.13:147-150. '64 (MYRA 17:8)

GEL'PERIN, I.I.; KAGAN, A.M.

Heat emission from boiling water at small thermal loads. Khim.prom.  
40 no.8:616-619 Ag '64. (MIRA 18:4)

SIRAZHDINOV, S.Kh.; KAGAN, A.M.

H. Cramer's condition. Dokl.AN Uz.SSR no.12:5-7 '58.  
(MIRA 12:1)

1. Chlen-korrespondent AN UzSSR (for Sirazhdinov). 2. Institut  
matematiki i mekhaniki im. V.I.Romanovskogo AN UzSSR i  
Sredneaziatskiy gosudarstvennyy universitet im. V.I.Lenina.  
(Mathematical statistics)

Empirical Bayesian approach ...

S/020/62/147/005/006/032  
B172/B112

$$q(P_{G_1}, P_{G_2}) = \sup_{x_1} |p_{G_1}(x_1) - p_{G_2}(x_1)|$$

and the following two theorems are formulated. Theorem 1: An estimate  $E(\alpha/x)$  on the basis of an independent observation of  $X$  according to Robbins' scheme (Proc. III Berkeley Symposium on Math. Statistics and Probability, 1, 1956) exists if and only if

$$\int_A \alpha p(x_1; \alpha) dG(\alpha) = \lim_{n \rightarrow \infty} F_n(P_G; x),$$

where  $F_n(P_G; x)$ ,  $n = 1, 2, \dots$ , are continuous functionals over  $\mathcal{P}$ .

Theorem 2: If  $G_1 + G_2$  follows from

$$\int_A p(x_1; \alpha) dG_1(\alpha) = \int_A p(x_1; \alpha) dG_2(\alpha), \quad i = 1, 2, \dots,$$

and if the  $p_i(x_1; \alpha)$  are continuous then the estimate mentioned in theorem 1 exists. A simple example is also given for which  $E(\alpha/x)$  does not exist.

Card 2/3

KAGAN, A.M.

Robbins' scheme. Dokl. AN SSSR 150 no.4:733-735 Je '63.  
(MIRA 16:6)

1. Predstavleno akademikom V.I. Smirnovym.  
(Mathematical statistics)



KAGAN, A.M.

Theory of fisher's information quantity. Dokl. AN SSSR 151  
no.2:277-278 J1 '63. (MIRA 16:7)

1. Predstavleno akademikom V.I.Smirnovym.  
(Probabilities)

KAGAN, A. M.

Transactions of the Sixth Conference (Cont.)

SOV/6371

- |     |                   |   |     |
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| 71. | Gladkov, B. V.    | Some Problems in the Tabulation of the Beta-Distribution  | 385 |
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| 73. | Kagan, A. M.      | Some Properties of the Estimates of Maximum Likelihood  | 397 |
| 74. | Chentsov, N. N.   | On the Asymptotic Effectiveness of an Estimate of Maximum Likelihood (comment on A. M. Kagan's report "Some Properties of the Estimates of Maximum Likelihood") | 399 |
| 75. | Krasulina, T. P.  | On Stochastic Approximation   | 403 |
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Transactions of the 6th Conf. on Probability Theory and Mathematical Statistics and of the Symposium on Distributions in Infinite-Dimensional Spaces held in Vil'nyus, 5-10 Sep '60. Vil'nyus Gospolitizdat Lit SSR, 1962. 493 p. 2500 copies printed

KAGAN, A.M.

A class of measures in a space of sequences. Sib. mat. zhur. 4 no.4:  
956-959 J1-Ag '63. (MIRA 16:9)

KAGAN, A.M.

Some statistical problems relating to a certain type of  
observation. Vest. LGU. 18 no.19:142-143 '63. (MIRA 16:11)

KAGAN, A.M.

Distribution families and separating partitions. Dokl. AN  
SSSR 153 no.3:522-525 N '63. (MIRA 17:1)

1. Predstavleno akademikom A.N. Kolmogorovym.

RAGAN, A. M.; LINNIK, Yu. V.

A class of families of distributions admitting similar zones.  
Vest. LGU 19 no.7:16-18 '64. (MIRA 17:7)

KAGAN, A.M.; SHALAYEVSKIY, O.V.

Behrens - Fisher's problem concerning the existence of similar  
zones in an algebra of sufficient statistics. Dokl. AN SSSR 155  
no.6:1250-1252 Ap '64. (MIRA 17:4)

1. Predstavleno akademikom A.N.Kolmogorovym.

ABRAMOVICH, Z.A., inzh.; DUSAVITSKIY, A.K., inzh.; KAGAN, A.P., inzh.;  
RUBIN, L.B., inzh.

Laying pipes above ground at existing enterprises. Stroi.  
truboprov. 6 no.6:12-14 Je '61. (MIRA 14:7)

1. Ukrainskiy Gosudarstvennyy proyektnyy institut "Santekhproyekt",  
g. Khar'kov.

(Gas pipes)



KAGAN, A. S.

IA 2/49T17

USSR/Engineering  
Welding

May 48

"The Activity of the Leningrad Department, NITO  
of Welders for 1947," Prof N. O. Okerblom, A. S.  
Kagan, 1 1/2 pp

"Avtogen Delo " No 5

In 1947, scientific research societies were assigned  
task of aiding the people of the USSR to fulfill  
second-year plans of the Five-Year Plan. Briefs  
some contributions made by the societies.

2/49T17

137-58-6-11980

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 6, p 113 (USSR)

AUTHORS: Lyumkis, S.Ye., Chermak, L.L., Kagan, A.S.

TITLE: Methods of Increasing the Activity of Powdered Nickel (Puti povysheniya aktivnosti nikelovogo poroshka)

PERIODICAL: Byul. tsvetn. metallurgii, 1957, Nr 16, pp 20-22

ABSTRACT: The conditions required to obtain active Ni powders are investigated. It is established that the size class of the initial oxide and the temperature at which it was heat treated are the dominant factors determining the degree of activity of the Ni powders. By means of X-ray analysis it was established that high-temperature processing increases the size of the crystallites grains of the nickelous oxide which, in turn, reduces the activity of the powder. In order to obtain a suboxide with grains of the required size (3-5  $\mu$ ), it is essential that in the process of roasting of a metal sulfide product (obtained by bessemerization of mattes) the temperature of the suboxide not be allowed to exceed 800-900°C. Results of laboratory investigations are utilized in the development of an industrial method for the production of active Ni powder. 1. Nickel powders--Properties 2. Nickel powders--Temperature factors 3. Nickel powders--X-ray analysis 4. Nickel powders--Production

Card 1/1

18.8000

75394  
SOV/149-2-5-20/32

AUTHORS: Kagan, A. S., Umanskiy, Ya. S.

TITLE: Characteristic Temperatures of Cu-Al Alloy in the Temperature Interval 96 to 803°.

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Tsvetnaya metallurgiya, 1959, Vol 2, Nr 5, pp 143-145 (USSR)

ABSTRACT: The conventional method for determination of the characteristic temperature  $\Theta$  (Debye temperature) according to changes in intensity of X-ray diffraction maxima, is inaccurate owing to considerable distortions found in solid solutions. A discrepancy will be found between  $\Theta$  determined (a) from the X-ray data and (b) from elasticity modulus. In a previous work by Il'ina, V. A., Kritskaya, V. K., Kurdyumov, G. V., Osip'yan, Yu. A., and Stelletskaya, T. I., Problems of Metal Study and Metal Physics (Problemy metallovedeniya i fiziki metallov), Vol 5, 1958, a conformity is indicated in the changes of  $\Theta$  and of Young's modulus (E). However, there is a

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Characteristic Temperatures of Cu-Al  
Alloy in the Temperature Interval  
96 to 803°.

75394  
SOV/149-2-5-20/32

disproportion in these changes: if  $\theta$  of an annealed Fe-Cr alloy differs from  $\theta$  of a quenched Fe-Cr alloy by 30%,  $E$  differs only by 0.5%. Therefore, the authors undertook a determination of the characteristic temperature of a Cu-Al alloy containing 8.8% Al using the radiographic method as well as that of elastic constants. An ingot weighing 0.6 kg was prepared from electrolytic copper and aluminum in a graphite crucible covered with charcoal, cast in an iron mold, cold forged, and homogenized at 1,000° during 4 hr. Nine-mm OD rods were forged from which 5-mm OD 250-mm long rods were machined. These rods were annealed in argon at 700° for 1 hr before measuring their moduli. Specimens for radiographic study at high temperatures were upset in a press and annealed at 580° for 1 hr. For lower temperatures a powder specimen was prepared, after annealing it at 520° for 30 min. The characteristic temperature was determined in accordance with the reflection intensity (changing with the temperature) of lines 331 and 420. A URS-50-I installation and Cu  $K_{\alpha}$  radiation were

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Characteristic Temperatures of Cu-Al  
Alloy in the Temperature Interval  
96 to 803°.

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SOV/149-2-5-20/32

used. Readings at high temperatures were taken in a rotating furnace attached to the goniometer. The rotation speed was 1 rpsec. Low-temperature readings were taken in a chamber consisting of a Dewar metal container, the inner section of which was filled with liquid nitrogen. Results were control-checked with those for pure copper. Following values of  $\theta$  for Cu-Al alloy were obtained: for the intervals 96-295°, 295-423°, 295-473°, and 295-523° they were 342, 341, 330, and 330° respectively.  $\theta$  values at higher temperatures are shown in Fig. 1.

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Characteristic Temperatures of Cu-Al  
Alloy in the Temperature Interval  
96 to 803°

75394  
307/149-2-5-20/32

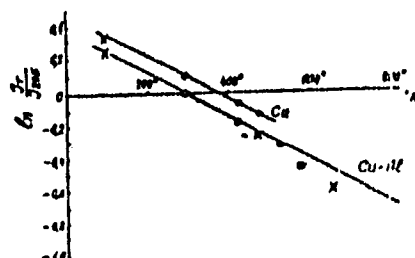


Fig. 1. Logarithm of intensity ratio for lines 331 vs temperature. The curve of Cu is shifted upward by 0.1. Solid lines express theoretical values of  $\theta = 315^\circ$  for Cu and  $\theta = 341^\circ$  for Cu-Al).

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Characteristic Temperatures of Cu-Al  
Alloy in the Temperature Interval  
96 to 803°.

75394  
SOV/149-2-5-20/32

Elasticity and stretching moduli E and G were determined in accordance with methods described by Korotkov, V. I., Fizika metallov i metallovedenie, 2, Vol 1, 1956 (Metal Physics and Metal Studies), while the characteristic temperature was determined by the same author in DAN USSR, Nr 5, 108, 1956 (Reports S.S. USSR). The characteristic temperature found by this method was 350°, which coincides fairly well with the radiographic data. While the atomic diameters of Cu and Al differ by 9%, the lattice identity period (when 8.84% Al are dissolved) increases by 1.2%, and the static distortions are low:

$\sqrt{U_{st}^2} = 0.055 \text{ \AA}$ . This probably explains the agreement of both results. The help of Korotkov, V. I., candidate of physical & mathematical sciences, for measuring elasticity moduli is acknowledged. There is 1 figure; and 3 Soviet references.

ASSOCIATION: Moscow Steel Institute. Chair of Metal Physics and of Radiography (Moskovskiy institut stali. Kafedra fiziki metallov i rentgenografii)

Card 5/5

18.1220

67767

SOV/126-8-5-20/29

AUTHORS: Kagan, A.S., and Umanskiy, Ya.S.

TITLE: Analysis of the Kinetics of the Two-phase Decomposition  
of a Cu-Be Alloy by the Electric Resistance Method

PERIODICAL: Fizika metallov i metallovedeniye, Vol 8, 1959, Nr 5,  
pp 758-760 (USSR)

ABSTRACT: X-ray diffraction studies have shown that a two-phase decomposition takes place in a Cu-Be alloy containing 1.9% Be at temperatures up to 400 °C. This seems to contradict earlier results obtained by one of the authors (Ref 1) and this contradiction is attributed to differences in the quantity of extraneous admixtures in the alloys under investigation, particularly that of nickel. The Ni content of the alloy used in the experiments was 0.1%, whilst the alloy used in the earlier experiments did not contain any nickel. In the present paper the authors attempt to analyse the kinetics of the two-phase decomposition of the super-saturated solid solution of Be in Cu by the electric resistance method. Fig 1 is a plot of the electric conductivity as a function of the ageing time at 350 and 400 °C. It can be seen that, after a certain

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28(4), 18(7)

S/032/50/026/01/037/052  
H010/BC06

AUTHORS: Kagan, A. S., Umanskiy, Ya. S.

TITLE: Cameras for the URS-50I Apparatus, Adapted for  
Photographs at High and Low Temperatures

PERIODICAL: Zavodskaya laboratoriya, 1959, Vol 26, Nr 1, pp 108-109  
(USSR)

ABSTRACT: Two cameras intended for use at the URS-50I apparatus are described, which permit X-ray photographs to be taken at high and low temperatures. The camera for high-temperature investigations (Fig 1) consists essentially of a rotating oven, and is fixed to the larger holder of the goniometer. A jacket containing the four heating elements is mounted on the oven. At the free end of the jacket, the sample is held by a copper ring, its temperature being measured by a thermocouple. The emf of the latter is measured potentiometrically. The camera for X-ray photographs at low temperatures (Fig 2) is, essentially, a metal Dewar vessel, the inner wall of which (filled with liquid nitrogen) has a nozzle shaped projection to which the

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Cameras for the URS-50I Apparatus, Adapted for  
Photographs at High and Low Temperatures

S/032/60/026/01/037/052  
B010/B006

sample is attached. The outer wall also has a projection sealed by a celluloid film. The projection of the inner wall protrudes into that of the outer wall, thus enabling the X-rays to be focussed through the celluloid film on the sample. The temperature of the sample is measured by a thermocouple. Rapid sample heating from  $-177^{\circ}$  to room temperature can be effected by means of small heating elements. There are 2 figures and 1 reference.

ASSOCIATION: Moskovskiy institut stal' im. I. V. Stalina (Moscow)  
Institute of Steel imeni I. V. Stalin)

Card 2/2

KAGAN, A. S., CAND TECH SCI, <sup>Effect</sup> ~~INFLUENCE~~ OF MEASURING <sup>temperature</sup> AND  
HEAT TREATMENT ~~TEMPERATURES~~ <sup>upon</sup> ~~ON~~ CHARACTERISTIC X-RAY TEM-  
PERATURES OF CERTAIN SOLID SOLUTIONS. MOSCOW, 1960.  
(CENTRAL SCI RES INST <sup>at</sup> ~~FER~~ <sup>metals</sup> METALLURGY). (KL, 2-61, 208).

KAGAN, A. S., SOMENKOV, V. A., UMANSKIY, YA. S.

"~~9~~1. Diffuse Scattering of X-Rays by Aluminum Brass."

Steel Inst., Leninsky Prospekt 6, Moscow, USSR.

paper submitted for 5th Gen. Assembly, Symposium on Lattice Defects, Intl. Union of Crystallography, Cambridge U.K. Aug 1960.

18.8100

77703  
SOV/148-60-1-26/34

AUTHORS: Kagan, A. S., Umanskly, Ya. S.

TITLES: Characteristic Temperature of an Ag-Au Alloy Within a Temperature Range From 279 To 523° K

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Chernaya metallurgiya, 1960, Nr 1, pp 152-154 (USSR)

ABSTRACT: In order to determine the characteristic temperature  $\theta$  of Ag-Au alloys and of pure Ag in terms of the drop of the diffraction intensities with the increasing atomic thermal vibrations, the authors measured the diffraction intensities at 279-523° K by ionization set URS-50I. When a steady-intensity incident beam is applied

$$\ln \frac{I_{T_1}}{I_{T_2}} \frac{\Phi_{T_2}}{\Phi_{T_1}} = -2M_{T_1} + 2M_{T_2}$$

Card 1/4

Characteristic Temperature of an Ag-Au  
Alloy Within a Temperature Range From  
279 To 523° K

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SOV/148-60-1-26/34

holds, where  $\Phi_{T_1}$ ,  $\Phi_{T_2}$  denote the products of all  
factors except temperature and

$$2M = \frac{12A^2}{mkU} \left[ \frac{\Phi(x)}{x} + \frac{1}{4} \right] \frac{\sin^2 \theta}{\lambda^2}$$

describes the Debye-Waller intensity connections. The  
powdered Au and Ag, containing traces of Fe, Cu, Al,  
were mixed at 15:85 ratio and molten in an induction  
furnace with argon atmosphere. The obtained alloy was  
deformed, homogenized at 950° C for 2.5 hr, powdered and  
recrystallized at 300° C for 1 hr, after which the  
crystals became about 1 to 2  $\mu$ . The powder was stuck  
on a copper plate, fastened at the end of an electric  
heater, and placed on the axis of the X-ray goniometer.  
Two to three diffraction intensity curves were obtained  
for each desired interval of temperatures which were

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Characteristic Temperature of an Ag-Au  
Alloy Within a Temperature Range From  
279 To 523° K

77703  
SOV/148-60-1-26/34

controlled by a thermocouple. The method provided  
+2.5% accuracy of the computed  $\theta$ . The mean  $\theta$  for Ag  
was found to be 208.5° K which is within 203 to 215° K  
of values determined by various investigators by means  
other than X-rays. The  $\theta$  for the Au-Ag alloy at the  
intervals of (° K): 279-370, 279-423, 279-474, and  
279-523 were 200, 197, 194, and 200° K, respectively.  
Their average, 197° K, is close to the value determined  
by R. W. James (198° K) according to the elasticity  
method. The static or "chemical" distortion of the Ag  
structure due to the presence of dissolved Au proved to  
equal zero. This fact is the obvious result of only  
0.17% difference between the atomic radii of Ag and Au.  
The Debye-Waller intensity connections proved to remain  
valid for the entire temperature interval used in the  
experiments. The connections are for many solids,  
composed of less heavy atoms, restricted to much  
lower temperatures. This is because of the inversely  
proportional relation of the amplitude of thermal

Card 3/4

Characteristic Temperature of an Ag-Au  
Alloy Within a Temperature Range From  
279 To 523° K

77163  
SCI/146-60-1-26/34

vibrations of atoms to the square root of  $m\theta^2$  in which atomic mass  $m$  is high for both Au and Ag. There is 1 figure; and 9 references, 4 Soviet, 4 U.K., 1 Danish. The U.K. references are: M. Blackman, Phil. Mag., 42, 1951; R. W. James, G. W. Brindley, Proc. Roy. Soc., A 121, 155 1928; R. W. James, F. M. Firth, Proc. Roy. Soc., A 117, 62, 1927; R. W. James, Manchester Memoirs, 71, 9, 1926-1927.

ASSOCIATION: Moscow Steel Institute (Moskovskiy Institut Stali)

SUBMITTED: December 15, 1958

Card 4/4



S/070/60/005/003/024/024/XX  
E132/E460

AUTHORS: Kagan, A.S., Somenkov, V.A. and Umanskiy, Ya.S.  
TITLE: An X-Ray Camera for Studying the Diffuse Scattering by  
Polycrystalline Materials

PERIODICAL: Kristallografiya, 1960, Vol.5, No.3, pp.468-469

TEXT: There are stricter requirements in the use of diffuse scattering methods in metal physics than in ordinary structure analysis. Air scattering and slit scattering must be reduced and the monochromatization must be of a high standard. An attachment for the YPC-501 (URS-501) diffractometer which satisfies these conditions is described. It is basically a cylindrical enclosure with celluloid windows which surrounds the specimen. The enclosure can be evacuated. Slits are provided for removing radiation scattered by the air outside the enclosure from the primary beam from the monochromator. A crystal of Ge (111 plane) is used for monochromatization as it gives no 222 reflexion. The 333 reflexion is suppressed by reducing the tube voltage. When there is no specimen and the direct beam passes straight through the camera, the count rate recorded is equal to the cosmic ray

Card 1/2

S/070/60/005/003/024/024/XX  
E132/E460

An X-Ray Camera for Studying the Diffuse Scattering by  
Polycrystalline Materials

count rate. The apparatus can be used to record the diffuse background between 8 and 45°. Its operation has been tested with specimens of fused quartz and Cu. Comparisons with the theoretical scattering are reproduced and appear satisfactory. There are 3 figures and 4 references: 2 Soviet and 2 English. ✓

ASSOCIATION: Moskovskiy institut stali im. I.V.Stalina  
(Moscow Steel Institute im. I.V.Stalin)

SUBMITTED: November 18, 1959

Card 2/2

S/070/60/005/004/015/016/XX  
E132/E460

AUTHORS: Kagan, A.S., Somenkov, V.A. and Umanskiy, Ya.C.  
TITLE: Diffuse Scattering of X-Rays by Aluminum Brass

PERIODICAL: Kristallografiya, 1960, Vol.5, No.4, pp.540-543  
TEXT: Measurements of the diffuse scattering of X-rays by aluminum brass containing 18 at.% Al is carried out in an evacuated camera by means of a Geiger counter. CuK $\alpha$  radiation used in the investigation was monochromatized through the diffraction from a germanium crystal cut parallel the plane (111); the advantage of such Ge monochromator being the absence of (222) reflection. The scattered intensities were converted to absolute scale by comparison with the scattering by melted silica. The contribution of Compton scattering, temperature diffuse scattering and double Bragg scattering was estimated and eliminated. A correction for anomalous dispersion was included into calculations of Laue scattering. The diffuse scattering by quenched from 700°C samples was measured in the range from 8 to 43° in Bragg angles. The calculation of the short range order coefficients carried out for six coordination shells in the assumption that coefficients of the size effect  $\beta_i$  are equal  
card 1/3

S/070/60/005/004/015/016/XX  
E132/E460

Diffuse Scattering of X-Rays by Aluminum Brass  
to zero gave following figures:

$$\begin{aligned} \alpha_1 &= -0.43 \pm 0.10, & \alpha_2 &= +0.12 \pm 0.05, & \alpha_3 &= -0.32 \pm 0.05, \\ \alpha_4 &= +0.28 \pm 0.10, & \alpha_5 &= -0.27 \pm 0.05, & \alpha_6 &= -0.77 \pm 0.10. \end{aligned}$$

The diffuse scattering curve plotted on the basis of the short range coefficients given above agrees reasonably with the experimental curve, thus supporting the assumption  $\beta_1 = 0$  made previously. This assumption is supported also by measurements of static displacements estimated from the intensities of structure lines. The annealing reduces the short range order, the amount of reduction increasing with the annealing temperature. The short range order is considerably destroyed by cold working. The best short range order was discovered after a low-temperature annealing (260°C) of cold worked sample. These data explain the anomaly of the behaviour of aluminum brass after cold working and annealing. As the coefficients of the short range order for the first

Card 2/3

S/070/60/005/004/015/016/XX  
E132/E460

Diffuse Scattering of X-Rays by Aluminum Brass  
coordination shell were considerably higher than they should be for the superstructure  $\text{Cu}_3\text{Au}$  it was assumed that the atomic scattering functions of alloy components differ from atomic scattering functions of pure elements. This assumption was confirmed by an analysis of the intensities scattered by an intermetallic compound  $\text{NiAl}$ . There are 4 figures, 1 table and 12 references: 7 Soviet and 5 English.

ASSOCIATION: Moskovskiy institut stali im. I.V. Stalina  
(Moscow Steel Institute im. I.V. Stalin)

SUBMITTED: February 8, 1960

Card 3/3

S/O20/60/132/02/22/067  
B014/B007

18.8100  
AUTHORS:

Kagan, A.S., Umanskiy, Ya.S.

TITLE:

The Anomalies of the Thermal Factor of the Scattering of X-Rays by  
Ni - Cr, Cu - Zn and Ni - V Alloys

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol. 132, No. 2, pp. 326-328

TEXT: In the introduction the authors refer to the assumption of the Debye-distribution of thermal waves according to frequency, which was made when determining the characteristic temperature. The actual spectrum in all cases deviates more or less considerably from this assumption. In the present paper the results obtained by investigations on a nickel-chrome alloy with 21% Cr, on  $\alpha$ -brass with 31.6% Zn, and on a nickel-alloy with 8% V are given. The X-ray diffraction studies were carried out by means of CuK $\alpha$ -emission; determination of the characteristic temperature by means of the modulus of elasticity carried out according to a method previously described by the authors (Ref. 16). The investigations on the nickel-chrome alloy were carried out both on samples, which were in the K-state and on such in which there was no K-state. Investi-

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The Anomalies of the Thermal Factor of the Scattering  
of X-Rays by Ni - Cr, Cu - Zn and Ni - V Alloys

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B014/B007

gation of the Cu-Zn-alloy was carried out both on samples which had a regular lattice and on samples with a disordered lattice. The pre-treatments of the samples are briefly discussed, and measuring results are shown in the diagrams of Figs. 1-3, in which the dependence of the logarithm of relative intensity on temperature is graphically represented. In tables 1-3 the calculated characteristic temperatures are given. It is found that the characteristic temperature of the samples determined in two ways differs, and besides, the characteristic temperature determined by means of X-ray diffraction study in the temperature range of liquid nitrogen up to room temperature and in the temperature range from room temperature up to higher temperature differs. Only for brass in the ordered state is this difference near the measured error. When discussing the results obtained, the authors point out the fact that in high-temperature measurements it is not the shape of the spectrum but the maximum frequency that exerts an influence upon the thermal factor. The causes of the anomalies of the thermal factor must be explained by investigations of the diffuse scattering on monocrystals. The authors thank Yu.A. Rymashevskiy for his assistance in measuring the moduli of elasticity. There are 3 figures, 3 tables, and 18 references, 7 of which are Soviet.

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The Anomalies of the Thermal Factor of the Scattering  
of X-Rays by Ni - Cr, Cu - Zn and Ni - V Alloys

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B014/B007

ASSOCIATION: Moskovskiy institut stali im. I.V. Stalina (Moscow Steel Institute  
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KAGAN, A.S.; UMANSKIY, Ya.S.

Relation between the X-ray characteristic temperature and  
the spectrum of elastic vibrations. Fiz. tver. tela 3 no.9:  
2683-2687 S '61. (MIRA 14:9)

1. Moskovskiy institut stali imeni I.V. Stalina.  
(Crystals) (X-rays)

S/126/61/012/004/018/021  
E193/E383

AUTHORS: Kagan, A.S., Rass, T.G. and Gorazdovskiy, T.Ya.

TITLE: Some laws governing the formation of, so-called,  
"friction austenite"

PERIODICAL: Fizika metallov i metallovedeniye, v. 12, no. 4,  
1961, 617 - 619

TEXT: Abrasion-treatment of certain hardened steels brings about the formation of a surface layer, characterized by high hardness and by a structure which is difficult to reveal by metallographic methods. X-ray examination of layers of this type showed them to contain austenite in quantities greater than those in the unaffected part of the specimen - hence the term "friction austenite". The object of the present investigation was to study the relationship between the quantity of friction austenite and the initial quantity of residual austenite in the steel  $\text{UX15}$  (ShKh15), hardened by quenching from  $850^{\circ}\text{C}$ . Specimens with a different residual austenite content were obtained by varying the conditions of sub-zero treatment of hardened material. The residual-austenite content was determined

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austenite content and that the increase in B due to abrasion-induced work-hardening is almost constant, irrespective of the residual-austenite content. It is true that both the initial B and its increase reflect not only distortions of the second type but also dispersion of the mosaic blocks formed as a result of both  $\gamma \rightarrow \alpha$  transformation and work-hardening and that separation of these two effects is, in this case, rather difficult. It can, however, be assumed that the part of the total increase in B which is caused by work-hardening and phase-transformation does not depend on the residual-austenite content. Consequently, it is valid to infer from B the relationship between the magnitude of distortion of the second type and the residual-austenite content. The proportion of friction austenite in steel ShKh15 decreased also (with a corresponding increase in the proportion of martensite) after tempering at 160 °C. This effect can be attributed to stress relief and to the consequent decrease in the stability of austenite. There are 2 figures and 8 Soviet-bloc references.

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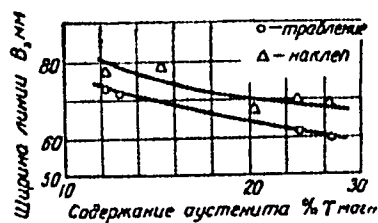
Some laws governing ....

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Fig. 2:



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